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Where Students Start and What They Do When They Get Stuck: A Qualitative Inquiry into Academic Information-Seeking and Help-Seeking Practices

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ABSTRACT

This study investigates two questions key to academic library resources and services: Which sources are students most likely to use to begin their academic work? Whom do students tend to consult for research assistance? In-depth interviews conducted with 15 undergraduate and graduate students were thematically analyzed through a three-step process. The findings indicate that students are most likely to consult faculty and peers for assistance and are largely unaware of librarians' roles, while they tend to begin research using library databases and do not necessarily start with Google. In addition, student use of small study groups as learning networks and reliance upon alternate sites to conduct research emerged as unanticipated themes.

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INTRODUCTION

The reasons why students use or do not use library resources and services have long been of major interest to academic librarians. This interest has been expressed in a variety of ways, from approaching undergraduate library use quantitatively and attempting to link library visits or use of resources with measurable indicators of student success (Oakleaf, 2010), to adopting qualitative or ethnographic methods to understand why students use or do not use different aspects of a library in their academic work (Duke & Asher, 2012). While it is necessary to investigate these questions about library use with a range of methods that are applied to different settings, the answers to *why* students do or do not use libraries are highly contextual, contingent upon time, place, and need, and as such are best answered using qualitative approaches that can account for users' unique perspectives.

By closely analyzing 15 interviews conducted with undergraduate and graduate students, the authors investigated students' first steps in academic information-seeking as well as their help-seeking activities. Sustained and careful investigation of transcripts revealed students' practices, thoughts, and attitudes about their academic work, and led the authors to a greater understanding of how students choose to utilize or not utilize the library. This study's findings confirm some common

understandings about how students begin their research and where they seek assistance, yet they also reveal some results that go against the grain of what previous works have found regarding student research habits. One desired outcome of this qualitative study was gathering student input to support informed decisions about our library resources and services. Although these findings are specific to Long Island University Brooklyn, they contribute to a larger body of knowledge and may be useful to librarians at similar institutions for planning and decision-making activities.

METHOD

This study is based upon a large-scale ethnographic research project conducted at a mid-sized private university in the northeastern United States, which used a mixed-methods design consisting of unobtrusive observations, a survey, and in-depth interviews to explore undergraduate and graduate research processes and study behaviors. The project's principal investigator was Dean of Libraries Valeda Dent, who had previously conducted ethnographic research projects and had extensive experience in qualitative methods. The primary component of this project was interviews conducted with students from a variety of academic levels and majors. These interviews took place in spring and summer 2013, with one librarian leading the semi-structured interview process and one librarian or staff member recording the interview. Each interview ranged from 40 min to 1 h in length, and students received an Amazon gift card for \$25 in exchange for their voluntary participation. The interviews addressed a variety of topics, including technology use for

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academic purposes and preferences for study space, but focused most heavily on student use or non-use of library resources and student practices in beginning a research assignment. The coding of these interviews by a team of four librarians, including one of the authors of the study at hand, began in spring 2014 and concluded in spring 2016. [Appendix A](#) contains a list of the individuals who contributed to the project through data collection and analysis.

The 15 interviewees were recruited from a survey distributed via email to all students, and were selected for their representativeness of various levels of study, years of study, and majors at the university. Considered as a whole, the interviewees are reflective of the greater student body. While this is a small number of participants to draw conclusions from, it is a number appropriate to this type of qualitative analysis, which seeks to derive detailed textual insights from small sample sizes. It should be noted that the research habits of undergraduate and graduate students are likely to differ due to additional research experience, the development of disciplinary expertise, and other factors. For the purposes of this study the students were considered together, in order to identify commonalities among academic library users across their various levels of study.

Beginning with an initial reading of 15 interviews conducted at the Long Island University Brooklyn library, the authors developed a list of areas of interest to focus upon and potential research questions to explore. After this first reading, the codebook used in the initial coding of interviews by a different research team was shared, and codes and keywords regarding the initial areas of interest and potential research questions were searched for within each transcript to identify passages of main interest. In this way the study began with the holistic reading of the dataset (15 interview transcripts) to generate potential areas of interest and research questions, and then moved to a targeted thematic analysis of transcripts using codes and keyword searches to investigate answers to the research questions. Based on a preliminary analysis of the interview transcripts, the authors developed two research questions:

1. What sources do students consult for research assistance? When and why do they seek help from librarians?
2. What steps do students take when they begin a research assignment?

In addition to the above research questions, the authors took note of additional themes that directly informed their understandings of student help-seeking and research processes. The initial reading of interview transcripts and the development of research questions were followed by the authors' own deductive analyses, which entailed three primary steps: first, identifying where certain codes and keywords appeared in each transcript; second, identifying passages and quotes within the transcripts relevant to the research questions; and third, developing and refining themes based on examinations of the dataset. In between each step the authors met to discuss findings and clarify questions that arose.

The close reading of in-depth interviews through coding and deductive analysis was chosen in order to more deeply investigate and interpret the complex nature of students' research and help-seeking practices. [Biddix, Chung, and Park \(2011\)](#), in regards to [Head and Eisenberg's \(2009\)](#) study of student information seeking in the digital age, note that students' complete research processes can arise only through interviewing students in focus groups and one-on-one:

Students referred to the site [Wikipedia] as a “preresearch tool” or a “step .05” that preceded scholarly databases and helped students funnel or refine their topics. This finding arose only during interviews, and given that many studies on student use of the Internet are survey-based, suggests that researchers need to reconsider how they frame questions regarding search strategies. (2011, p. 176).

The iterative, deductive process of identifying passages of interest and discerning findings based on the data was a time consuming process, but necessary in order to fully understand interviewee comments

and the contexts that processes of help-seeking and research take place within. Due to the relatively small sample size, the authors determined that a qualitative analysis software program such as NVivo was unnecessary, and the hand-coding and close reading of transcripts revealed a number of themes that were useful in posing answers to the research questions.

LITERATURE REVIEW

Because the larger ethnographic research project was initially conceived of by the Dean of Libraries, the authors reviewed the library science literature after the analysis of transcripts had been completed, concomitantly with the development of answering the research questions. The literature that investigates the initial steps students take when beginning a research assignment was reviewed first. Where do they begin? Second, the authors sought literature regarding the help-seeking behaviors of students. When and why do they seek help from librarians? The authors focused the review particularly upon studies that utilized student interviews or mixed methods that included interviews.

Many library science studies that investigate how students begin a research project have found that some students do, in fact, begin with library resources. [Colón-Aguirre and Fleming-May](#) interviewed 21 undergraduates, finding that 16 of 21 interviewees had used the library's electronic resources, with 6 “avid” users who began their searches with library materials and 10 “occasional” users who eventually did so, if not at the start (2012, p. 394). In their *Project Information Literacy Progress Report*, [Head and Eisenberg \(2009\)](#) conducted a large survey and follow-up interviews and found that when conducting course-related research, a majority of students used library resources. In an earlier study that incorporated student discussion groups, content analysis of research assignment handouts, and student surveys, Head concluded that “a majority of students began their research by consulting course readings or the library's website for online access to scholarly journals” (2007, p. 3). Forty percent of respondents said their first step was to consult course textbooks or other course readings, while 23% began by accessing academic journals through the library's database subscriptions. Only one in ten students reported using the Internet first when conducting research ([Head, 2007](#), pp. 3–4). [Biddix et al. \(2011\)](#) found through in-depth interviews that even students who begin on the Internet ultimately utilize subscription databases and library books more often than survey results suggest. In their article about Wikipedia use, [Head and Eisenberg \(2010\)](#) found via student focus groups and surveys that college students use Wikipedia for background information but ultimately combine it with other information resources. Seventy percent of respondents use Wikipedia near the beginning or at the very beginning of the research process, and only 2% of respondents reported using Wikipedia near or at the end ([Head & Eisenberg, 2010](#), p. 5). A notable exception to this consensus is [Mizrachi's \(2010\)](#) study of UCLA students. In it, 16 of 29 (55%) of students who were interviewed about their research activities reported beginning their research on the Internet, often Google or Wikipedia.

When seeking help on their research projects, students turn to their professors and peers, and only sometimes to librarians. Nearly every published study of help-seeking behaviors reached this conclusion. [Beisler and Medaille \(2016\)](#), whose methodology included student drawings, written answers, and interviews with nine undergraduates, found that students asked for help from peers and family members but rarely from librarians. Surveying a large group of graduate social work students, [Ismail](#) discovered that even graduate students consult librarians last for research help; students of all age groups begin by asking friends, classmates, and professors (2013, pp. 167–168). [Pellegrino \(2012\)](#) found via a survey that students were reluctant to seek help from librarians even when encouraged by librarians, as no significant relationship was determined between students who were encouraged by a librarian to ask for help and students who did so. Pellegrino made

another important find: there existed a strong positive relationship between students who were encouraged or required by faculty to ask a librarian for help and students who did so.

Miller and Murillo's (2012) chapter in *College Libraries and Student Culture: What We Now Know* provides analysis of 91 ethnographic interviews conducted with undergraduates and with teaching faculty at three Illinois universities. Students consult peers, teaching faculty, public librarians, family members, and themselves (self-reliance). Academic librarians are last in the list of helpers. Head and Eisenberg (2009) similarly found that students did not take advantage of reference services. Some studies explain particular barriers that prevent students from seeking help from librarians. Robinson and Reid (2007) conducted interviews with 12 students and were particularly struck by the extent to which shyness and embarrassment prevent students from seeking help. Even students who are otherwise confident may fear the embarrassment of asking a librarian for help. Head found that students considered reference librarians helpful, but only 4% of students said their first step was to ask a librarian (2007, p. 6).

RESULTS AND DISCUSSION

The 15 in-depth interviews that this study drew upon were conducted with students representing a range of backgrounds, academic levels, and interests. A number of different first languages are spoken, for example, and nursing and health science majors comprise more than half of the majors or masters of interviewees. Among study participants there is an almost even distribution of graduate/doctoral and undergraduate students. Table 1 summarizes interviewee demographics, including level of study, year of study within that level, first language, status as an international student, and declared major.

RESEARCH QUESTION 1: WHAT SOURCES DO STUDENTS CONSULT FOR RESEARCH ASSISTANCE? WHEN AND WHY DO THEY SEEK HELP FROM LIBRARIANS?

Research Question 1 pertains to student consultation of different sources for research assistance. In particular, students were asked where they tended to go for assistance with research-related issues, and whether they have sought help from library personnel. The latter question was intentionally framed so that it could refer to librarians and library staff alike, as it has been established that students are sometimes unable to discern who is a librarian and who is not, or are not concerned with differentiating between library workers. Several themes were discerned based on an analysis of the interview transcripts, and each theme is described in further detail.

STUDENTS FREQUENTLY SEEK ASSISTANCE FROM THEIR INSTRUCTORS AND PROFESSORS

A close reading of the interview transcripts revealed that students most frequently go to their instructors and professors for research-related help. Six out of the 15 participants (40%) stated this preference. In contrast, Beisler and Medaille (2016) found that students first asked peers and family members, and Ismail (2013), studying students by age, found that 25–29 year olds sought help from friends and classmates first and from professors second while 30–39 year olds first asked professors for help, then friends and classmates. Students 40 and older sought help equally from friends and classmates and instructors first (Ismail, 2013, pp. 166–167). The interviewees particularly valued their professors' advice for their subject expertise, whether in terms of understanding the field or recommending specific resources to follow up on. One graduate student in film studies describes his preference for owning books as well as his primary resource, a professor in his program:

I've always been kind of partial to having books as opposed to waiting for books or borrowing books. Usually the living encyclopedia is [professor's name] in [department]. You go to him, you ask him, he'll show you the book and then I'll usually buy it.

This interest in disciplinary expertise is explored further in a section below. In the following exchange, a senior double-majoring in health science and psychology informed the interviewer that she had only gone to a librarian once, and that she typically consults her professor in person instead of by email:

Interviewer: Okay. If you're frustrated with your research though, since you've only used the librarian one time, it sounds like it was sort of an anomaly. When you do your research, who do you usually go to? Is it your professors? Interviewee: Professor. Interviewer: Professor, okay. How do you—is it usually through email or do you talk to him in person, like you're having trouble on an assignment, or trouble with research for an assignment? Interviewee: If I have trouble with research, I would probably talk to him after class or during office hours.

Interviewees generally indicated that they approached their instructors for not only clarification of assignments and course content, but myriad other research-related activities that are within the purview of librarians as well.

STUDENTS FREQUENTLY CONSULT PEERS AND CLASSMATES FOR ASSISTANCE

While fewer in number than those who turn first to their professors for help with research, Four out of 15 interviewees (27%) described

Table 1
Participant demographics

Participant number	Level of study	Year of study	First language	International student	Major
1	Undergraduate	Second year	(Unknown)	N	Mental health counseling
2	Graduate	Second year	German	N	Speech-language pathology
3	Undergraduate	Second year	English	N	Social work
4	Graduate	Second year	Italian	N	Physician assistant
5	Undergraduate	Fourth year	English	N	Nursing
6	Graduate	First year	English	N	Accounting
7	Undergraduate	Fourth year	English	N	Athletic training
8	Graduate	Second year	Hindi	Y	Pharmaceutics
9	Graduate	Second year	English	N	Physical therapy
10	Graduate	Second year	Spanish	N	Public Administration
11	Undergraduate	Third year	English	N	Nursing
12	Graduate	Second year	Swedish	Y	Media Arts
13	Undergraduate	Fourth year	English	N	Psychology and Health Science
14	Doctoral	Second year	English	N	Clinical Psychology
15	Undergraduate	First year	Tagalog	N	Nursing

seeking help from classmates and peers when they had questions about their course assignments. Graduate and undergraduate students alike often sought help from their peers for their academic work. This reliance on peers was sought out either in a peer-to-peer environment, as two interviewees explained, or within small study groups that were established for a particular course. Oftentimes this help seeking would be to confirm that a student is not “missing” anything, or that they are on the right track with an assignment or with their research approaches. A graduate student in accounting describes conferring with classmates to compare information-seeking strategies, particularly in terms of database selection: “I would talk to them [peers] to see what databases [they used] if I didn’t find anything that I really need. If I needed to add something more...a different database or something.” In general, interviewees sought research-related assistance from peers for ongoing purposes, such as “benchmarking” their progress on an assignment or comparing resources found to those found by their classmates. In contrast, professors were consulted early in the research process, especially in relation to topic development and selection and getting pointed in the direction of key researchers or texts within the subject area.

STUDENTS OCCASIONALLY SEEK LIBRARIANS FOR RESEARCH HELP

Students less consistently reported approaching a librarian for assistance. Only one out of 15 students reported going first to a librarian. When students did ask a librarian for help it was often for activities directly related to the library, such as locating a textbook on reserve or accessing a subscription database. Four interviewees mentioned going to a librarian for searching assistance, including help using the library catalog or locating an article in a database, while two mentioned that they ask for help only when requiring something in the physical library, like finding a book or printing. This pattern of students consulting faculty and peers most frequently is confirmed by a number of studies detailed in the literature review, but most notable is Head and Eisenberg’s (2009) *Project Information Literacy* “Lessons Learned” report. This large-scale survey distributed to undergraduates at six campuses indicated that “Eight out of 10 of the interviewees reported rarely, if ever, turning to librarians for help with course-related research assignments” (Head & Eisenberg, 2009, p. 3). While the qualitative analysis at hand shows somewhat more engagement with librarians, perhaps due to its inclusion of graduate students, it confirms that librarians are an underutilized source for course-related help.

STUDENTS VALUE INSIDER KNOWLEDGE AND SUBJECT EXPERTISE

Two students, a sports science undergraduate and a pharmaceuticals graduate, strongly suggested that their peers are better at searching and finding information than librarians. For this reason, they strongly preferred to consult their peers when seeking research assistance. One interviewee notes without hesitation that they would consult peers if they had a question about a journal in their field or research strategies:

I asked [my peers] about the *Journal of Athletic Training*, about what would be a better way to research. Just because it’s our—we’re such a close knit group...they know exactly what I’m talking about. They’re able to assist me, so it takes away all of the confusion of while I’m trying to explain to you exactly what I need, and you may not know because the students are in the program, and whatever perks they’ve acquired, whatever niches they’ve found...I ask really my classmates and peers.

Of particular interest is the student’s comment on the librarian not having the insider knowledge that students in their program would. The extra effort of trying to convey the specifics of the assignment or the information required is not necessary when the student is conversing with their peers, and so this understanding of “exactly what I’m talking about” is a key reason for the student’s consultation of peers.

This student’s comments were echoed by a senior in the nursing department, who stated that in terms of seeking help for their academic work, “A lot of times it’s the professor, because it is the very specific topic that we have to write papers about. It’s not like general English. It’s usually about a topic in nursing. I had to do something about a patient who had AIDS. That’s why, usually my professor.”

This finding aligns with Ismail’s (2013) study of adult learners in a graduate program, which found that not only are librarians consulted less often than students’ instructors and peers, but that these learners may perceive the librarian as lacking the necessary subject expertise (2013). Similarly, Fister notes in her interviews with undergraduates regarding their research processes that, “It was the subject expertise of instructors that students tapped for sorting out current authorities and major studies; librarians were generally not approached in this stage of becoming familiar with the field” (1992, p. 165). While librarians may indeed have expertise in the subject a student is seeking information on, the interviews indicate that librarians are unlikely to be perceived as having such.

STUDENTS TEND TO BE UNAWARE OF LIBRARIANS’ ROLES OR PURPOSE

Students were generally unsure or unaware of librarians’ roles or purpose, which was implied in numerous interviews and particularly among undergraduates. This finding is interesting to consider in conjunction with students’ perception of librarians as lacking insider knowledge about their subject, as it indicates a more widespread lack of awareness of librarians’ work. One interviewee describes seeking help from library personnel when they need a book, but when asked if they seek reference help from the librarians, they state, “I never even thought of it.” Similarly, the following exchange illustrates the lack of understanding of librarians’ potential role in developing research questions, or lack of interest in seeking that help from a librarian:

Interviewer: You know what you’re looking for, and you just need sometimes help getting it, right? Interviewee: Yeah. Interviewer: Interesting. Have you ever gone to a librarian—have you ever been frustrated in designing a research question or in framing your study and gone to a librarian for that, or not? Interviewee: No.

Of the 15 participants, one public administration graduate student said that they ask the librarian on the third floor (the reference librarian) for help “all the time.” This was in stark contrast to other interviewees who either occasionally, infrequently, or never sought help from a librarian or library staff. This finding corroborates a conclusion made by Duke and Asher based on the *Ethnographic Research in Illinois Academic Libraries (ERIAL)* study of undergraduate research behaviors, which found an “almost uniform lack of understanding regarding the work of a librarian and the specific ways in which they can support students in their research” (2011, p. 162). However, the distribution between graduates and undergraduates in this research suggests that graduates are more likely to seek help from librarians, and that they do so more frequently. Four out of eight graduate students had sought help from librarians regularly (6+ times) or on occasion (3–5 times), while six out of seven undergraduates (88%) sought librarian assistance infrequently (1–2 times) or never.

One graduate student in physical therapy appeared to have a fuller understanding of librarians’ expertise, claiming that a professor was not as qualified as librarians to teach effective database searching skills. The student explains that in her course “Evidence Based Practice” there was a literature review assignment but no library instruction on how to effectively search the breadth of literature, and the professor only briefly taught how to search PubMed. When asked whether library instruction would have been useful, the student responds: “Absolutely. ‘Cause you guys know a lot more than she does ‘cause that’s not her main—you know, that’s not her main thing.” Fig. 1 indicates the frequency of assistance sought from librarians, as well as the students’ graduate or undergraduate status.

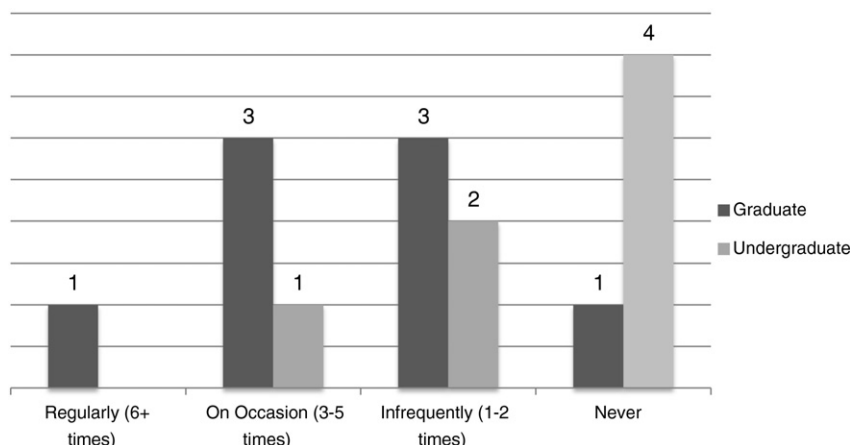


Fig. 1. Frequency of help sought from librarians.

RESEARCH QUESTION 2: WHAT STEPS DO STUDENTS TAKE WHEN THEY BEGIN A RESEARCH ASSIGNMENT?

Research Question 2 pertains to students' initial actions when beginning a research assignment. Students were asked to identify the "first thing" they do when presented with an assignment requiring research. Furthermore, review of the transcripts revealed each student's favored resource—the one they eventually turned to and relied upon. For both the first mentioned and favored resource, themes were discerned based on an analysis of the interview transcripts, and each theme is described in further detail below.

STUDENTS DO NOT NECESSARILY START WITH GOOGLE

We begin by comparing our findings with those of Lee (2008), in which 15 undergraduate students at the University of Wisconsin-Milwaukee were interviewed. Lee found that convenience, in the form of "heavy reliance" on the Internet was paramount for students. Students found Google to be the most convenient and therefore utilized it. This study, which included a near split of undergraduate (7) and graduate students (8), did not find evidence that students regard convenience as paramount when beginning research. Only five students (33%) started research on the Internet, reporting that they begin with "the Internet," "Google," and "Google Scholar." Three students were undergraduates and two graduate students. Thus, 60% of students who began with the Internet were undergraduates, and 40% were graduates. Wikipedia, reported as a frequent source for students near the beginning of a research project (Head & Eisenberg, 2010; Head & Eisenberg, 2009), was not mentioned at all by students in the interviews.

STUDENTS TEND TO BEGIN THEIR RESEARCH USING DATABASES

Despite not asking librarians or even library staff for research help, a surprising number of students begin research with online resources provided by the library. Ten of the 15 interviewees (67%) did not start with the Internet. Seven started with a specific database or with the Databases by Subject list. Three reported slightly different activity. One student reported beginning with the Full Text Finder on the library's website, which points to databases. Another reported beginning with "the library" but indicated that they specifically consult CINAHL. The third student said, "[I] search articles." The student went on to specify that they find articles either in the library databases or on the website of the American Speech-Language-Hearing Association. Of these ten students that begin with databases or other library website pages, six were graduate students and four undergraduate, including one first-year student, one second-year student, and two fourth-year students.

The interviewees initially utilized library sources more often than did the group interviewed by Colón-Aguirre and Fleming-May (2012), who found that only six of 21 students (29%) began with library resources. Among a group of both undergraduate and graduate students, our study found that ten of 15 students (67%) began with library resources, and among the undergraduates four of seven (57%) began with library resources.

THE "FIRST THING" MAY BE MULTIFACETED

At some point during each interview, students were asked to share the "first thing" they do when beginning a research project. Some students described plural initial research actions. Analysis of the transcripts revealed that the "first thing" may be a step toward a goal. Where students begin the research process in general is not the same as where they begin their search for sources. The interview method is effective in eliciting a fuller picture of the research process. One student uses Google to find the library page, where they then search databases; thus, that student's answer was not coded as beginning with Google but with databases. Two students described using YouTube to clarify concepts at the start of a research assignment. One went on to utilize Full Text Journals by Title to begin their searching. Another student reported beginning with course textbooks or assigned readings to find sources, but searches Google in an attempt to locate them. Head (2007) discussed this type of course-related research:

Librarians and faculty tend to define course-related research as identifying, evaluating, and using "outside references," [yet students surveyed] considered class readings a logical first step in their research process, especially as they tried to narrow down a topic and determine the scope of their paper (2007, p. 9).

MOST STUDENTS EVENTUALLY IDENTIFY A PARTICULAR DATABASE

Close reading of the transcripts revealed that most students have a primary resource that they regularly utilize during the research process. Eleven students (73%) primarily utilize library databases, either databases in general, by title, or by subject. Only four relied upon the Internet, including Google or Google Scholar, as their primary or essential resource, and three of the four were undergraduates. Among students who indicated that their primary research resource for locating full-text articles was a library database, these specific databases were identified as ProQuest, CINAHL, Sage, ScienceDirect, Mergent, and PsycINFO. One undergraduate simply reported their use of "databases." One graduate student described utilizing publications from a professional association in addition to EBSCO databases, while another reported using

physical therapy databases. Finally, one graduate student uses Google Scholar linked to the university's subscription databases. This represents a nearly even split between undergraduate and graduate students: five undergraduate and six graduate students regularly utilize library databases as their primary research tools. Fig. 2 indicates the resources described by students as their primary or "essential" resource for their academic research.

STUDENTS ARE OFTEN FAMILIAR WITH DATABASES BUT FIND THEM DIFFICULT TO USE

Students had much to say about databases. Many were very familiar with particular databases, and a few mentioned utilizing the "databases by subject" list on the library's website. Only one student, an undergraduate, reported searching for articles via the discovery tool, Encore. Search difficulty was discussed by several students. One interviewee describes how easy it is to locate the physical therapy databases on the library website but how difficult it is to find an article in them:

It's like some of them have it. I'll click on one in full text. I could have found the exact citation from like Google or...from another reference I'm reading. Then if I go and try to look it up here, then it won't find it, or it'll tell me that I have to look at other places.

The student goes on to explain that she has never had a library instruction session, even in the graduate course Evidence Based Practice, in which the professor "kind of gave [students] some help on PubMed." Despite searching databases, the same student shared, "If I'm not kind of forced into going with the class [preference]...then I'll just Google." Many answers were complicated and difficult to interpret, mirroring the difficulty the students experienced. One nursing undergraduate explains why she uses Google instead of a database despite knowing about and having used PubMed:

Interviewer: Do you ever use the library's online databases to find articles? Interviewee: [I] used it once or twice because...I remember we had a couple classes teaching us about how to use it. It wasn't very helpful because it's not that accessible. There's just so many databases that you don't know which one to pick...Usually you just go to PubMed...that's the only one I use, just to search. That's it. I just go to References, PubMed, type in my search. There's just so many articles that I'm not gonna go through all of them. That's why I go to Google. The top one usually is what I need.

ADDITIONAL FINDINGS

In addition to the findings regarding the research questions above, several other discoveries warrant attention due to their underrepresentation in the library science literature and contribution toward creating a more precise depiction of interviewees' research and study practices.

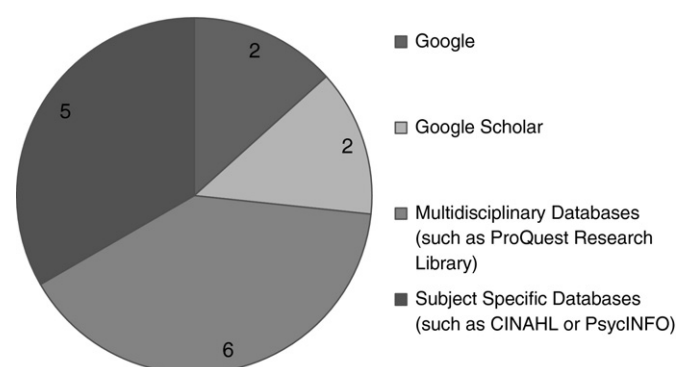


Fig. 2. Resources mentioned as primary choice for research.

These findings include the importance of group study for many students as a means of learning, the use of alternate sites for academic work and the creation of their own content for study purposes. While these findings were not investigated at the outset of this study like the research questions, they nonetheless arose as findings worthy of discussion.

STUDENTS BENEFIT SIGNIFICANTLY FROM GROUP STUDY

In several interviews students stated their preference for studying or working in groups with their classmates or peers. Their reasons were often due to the "social ambience" dimension of communal study, as described by Crook and Mitchell (2012). The authors emphasize that the experience of learning is collaborative, and they identify four varieties of social engagement: "(1) focused collaboration: occasions of traditional and relatively intense joint problem solving; (2) intermittent exchange whereby students convene for independent study that permits an occasional and improvised to-and-fro of questioning or commentary; (3) serendipitous encounter: chance meetings with peers in which study related issues are discussed briefly and on the fly; and (4) ambient sociality: students identify the importance of simply 'being there' as participants in a studying community" (2012, p. 136). This process of learning, not simply researching, individually and then with a group, is summarized by a physical therapy graduate student: "We study on our own, get enough knowledge, and then we come together and we talk about it. Then we explain things to each other. That's been really effective."

Other students indicated the usefulness of group study for their learning and comprehension. One pharmacy graduate student stated that they usually go to the library with their peers, and together they read notes from Blackboard on the library computers. Group study was one student's strategy of choice for keeping from getting distracted in his studies, noting that, "Essentially...we're all studying together. That would definitely hold my concentration because...we're all bouncing information off one another. In my opinion, that works best for me to study." Group study was the preference of many interviewees for practical reasons, like remaining focused, but also for learning and the potential for collaboratively confirming understandings and making new connections.

In their ethnographic study of commuter students attending urban campuses, Regalado and Smale (2015) found that the places for students to congregate were often very crowded during peak class times and the campuses lacked outdoor or green spaces. Students were able to strategize and find alternative spots on campus to relax or study, such as a top floor in a stairwell. Sometimes they opted to study in spaces off campus such as nearby parks, or courtyards. Most students in Regalado and Smale's study preferred to study in the library over any other location on campus. Like the students at Long Island University Brooklyn, many students are commuters and are on campus all day. These important factors of space availability, timing, and students' commitments outside of their studies are likely major contributing factors in their favoring of group study.

STUDENTS RELY ON ALTERNATE SITES FOR THEIR ACADEMIC WORK

University students' reliance upon locations other than their institution's library for their academic work, which is largely undocumented in the library science literature with the exception of large-scale ethnographic projects such as Regalado and Smale (2015) and Vondracek's (2007) survey of library non-use among undergraduates, was a salient and unanticipated discovery. Several students described their use of places such as workspaces in disciplinary departments, hospitals where they are training, and other students' homes in order to study collaboratively or conduct their research. Their reasons for doing so were varied and dependent on the setting.

One graduate student explained that he prefers to be around people when he studies, and instead of the library he typically chooses a

workspace in his disciplinary department or a computer lab. For this student the possibilities for conversation that these spaces allow for is key. In particular, studying or working in his department means that having “like-minded people” nearby (such as classmates and professors in his field) can lead to impromptu chats and not only the sharing of useful information, but creating stronger personal connections. The library, this student felt, does not offer those same opportunities for connecting with others with similar interests. When asked where he prefers to study, this student replied:

Interviewee: Either in the Media Arts [department] or in the Mac lab. Interviewer: Okay. Why do you prefer that? Interviewee: Just exchange of information, I guess. It's like-minded people around and every once in awhile and then we can talk—people are interested in the same topics, same era, so we can exchange information.

Similarly, another graduate student in a very different field of study, physical therapy, described a departmental computer lab as a place that she and her peers frequent instead of the library. This lab is where students in this department conduct many tasks they might in the library, such as typing assignments and printing reading materials, but this student preferred the departmental lab to the library because printing is free of charge.

The use of alternate sites for study and research also arose in a discussion of one nursing student's use of hospital libraries. This interviewee reported relying heavily upon specialized library resources to accomplish her clinical work, and due to a heavy workload spent much more time in hospital libraries than the university library. During her clinical rotations this student not only uses the subscription resources at hospitals such as UpToDate, but it was important to her that she have borrowing privileges, as described in this exchange:

Interviewer: When do you do your clinical rotations, are you ever—are you aware that a lot of these hospitals have hospital libraries? Interviewee: Yeah. Interviewer: Do you ever use their resources? Interviewee: Yeah, all the time. The only library I didn't like was [name of hospital] library 'cause we weren't allowed access to take out books.

Yet another preference in conducting academic work at alternate sites was reported by a graduate student in clinical psychology. This student prefers to do group work with other students at their homes. The students rotate homes they use to meet, and prefer this setting for study because they can relax in a comfortable environment and search for resources together:

Interviewer: If you're working in a group, how do you guys get together to work on that research? Interviewee: Normally, we just go to someone's apartment. Interviewer: Oh, all right. Maybe describe that a little more in detail, a time when it did happen. Interviewee: We all have laptops, so everyone could use their own laptop. I think it was nice 'cause we got to sit on a couch or comfortable chairs and relax. Then we did mainly kind of similar [tasks] like Internet searching, [searching] online journals.

This finding implies that instead of thinking about the library as a place very distinct from others in students' lives, it should be considered in conjunction with the many other spaces that students occupy, and how the library can best complement these sites in order to meet student needs. Studies such as Applegate's (2009), which conducts an observation of seating areas in both library and non-library spaces on a university campus, are an important step toward locating the library within the many other spaces students rely upon. Given that all interviewees who expressed a preference for conducting their academic work in places other than the university library were graduate students, the question of whether undergraduate students rely most heavily on the university library for study purposes while graduate students rely on it the least may be an interesting and revealing subject of investigation.

SOME STUDENTS GENERATE THEIR OWN CONTENT FOR STUDY PURPOSES

A second finding discovered among interviewees' responses, and one also largely unaddressed in the library science literature, is that of students creatively generating or compiling their own materials for study purposes. Generating content for studying is made much easier with the popularity of personal technology, and all of the students who described their use of self-generated study content used their mobile devices to do so. One of these examples involves what can be considered a “technology workaround,” which in itself is something several students reported—the need to negotiate technology not working properly and devising a way to work around it, whether using the library computers or their personal phones. This student uses the iBooks app on their iPad to store course readings as PDFs. They do so in order to bypass the Blackboard course management system, which they find cumbersome and difficult to navigate on their mobile device, and access course readings directly from their iPad after manually compiling the materials.

The creation of materials for study purposes also extends to recording lectures through audio and video, and making these files available online through video-sharing websites with the permissions set to private. In particular, a pharmacy graduate student describes the videotaping of lectures that are later posted to a student-created YouTube account open only to their classmates. This way the efforts of students are not duplicated and they can share the same files for future reference. When asked whether their professors are aware of this practice, the student reported that they are. In addition to videotaping lectures, this interviewee makes audio recordings of lectures, and says that other students do the same.

Other interviewees use technology for study purposes in other ways. A graduate student in the physician assistant program describes the use of an app called “Mental Case” in group study sessions:

Interviewee: It's an app that you use, and you can make flashcards. You can make the front and the back, and then it will tell you... whether or not you got it right or wrong. Camera operator: What are typical things that it quizzed you on? Interviewee: No, we make the flashcards... We would do, like, anatomy... Interviewer: It's self-generated. You generate that content—Interviewee: Self-generate, uh huh, so that at least we know what we're studying [based on] the material that we got from class.

This generation of study materials is organized by an app, but still requires the student's creation of the content they will be quizzed on. The social nature of the distribution and use of these student-generated study materials is encouraged by new technologies, yet many of the activities themselves, such as studying in small groups, remain the same.

SUMMARY AND CONCLUSION

Concerning Research Question 1, the findings indicate that students frequently seek research assistance from their professors and peers, students do occasionally seek librarians' help with their research, students value subject expertise and “insider knowledge” for assistance, and students are largely unaware of librarians' roles. An analysis of interview transcripts regarding Research Question 2 revealed that students do not necessarily start with the open Internet, students tend to begin their research using databases, the “first thing” students use for research may be multifaceted yet they eventually gravitate toward a particular database, and students are often familiar with databases but find them difficult to use. Additional findings not directly related to the research questions were discovered and provided a more complete illustration of students' research habits, including that students report benefitting significantly from group study, students rely on a range of alternate sites to undertake their academic work, and some students generate their own content for study purposes.

The findings suggest a few areas for future research and further inquiry. One potential avenue is to examine the types of sources that

teaching faculty require or encourage students to use. The results of such research would be useful for librarians who teach, provide reference, and develop collections. This study found a predominance of journal articles as the type of information sought by students. In science and medical disciplines or professions, journal articles are indeed paramount. However, the fact that only two out of 15 interviewees mentioned books as sources is notable. A second area recommended for further research is the investigation of teaching faculty attitudes toward librarians. Faculty perceptions of librarians can affect students' attitudes, but some faculty have little faith in librarians as teachers and researchers and this has the potential to impact whether students approach librarians for assistance (Miller & Murillo, 2012, pp. 60–62; Thill, 2012). A third recommendation for inquiry is the exploration of students' attitudes toward librarians. For example, Long Island University in Brooklyn, NY is a Predominantly Black Institution (PBI) serving an ethnically diverse student body, yet the majority of the reference and instruction librarians appear white/Caucasian. Help-seeking activity may be affected by librarian appearance. A study interviewing students about their attitudes toward librarians based on perceived ethnicity as well as gender and age could illuminate help-seeking behaviors.

The findings are presented with the understanding that the results are expected to vary from institution to institution, and are not intended to be generalizable. Indeed, this study draws attention to the complexities inherent in research and help-seeking—activities consisting of beliefs, expectations, habits, and knowledge that vary immensely from person to person. While this study cannot provide conclusive answers to the questions of where students begin research or where they seek research assistance, it supplies additional evidence to support some claims while questioning others. In particular, it raises important questions about the librarian's sidelined role in the help-seeking process, the assumption that students always begin their research with major search engines, and the ways in which student learning in peer groups or at sites outside the library can be supported. It is the authors' hope that librarian-researchers will take up these questions and work toward understanding their own students in order to find ways to best support the unique needs of their learning communities.

APPENDIX A. LIST OF STUDY PARTICIPANTS

Brooklyn Campus Participants: Katherine Boss, Valeda Dent, Charles Guarria, Rachel King, Paula Patiño, Susan Thomas, Ingrid Wang, Gloria Willson.

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